

LISTING OF THE CLAIMS

Claims 1-30 (Cancelled)

Claim 31 (Currently Amended) An integrated circuit comprising:

a substrate selected from the group consisting of single crystal silicon, diamond, quartz, crystalline oxides, crystalline or amorphous nitrides, amorphous or glassy oxides, and organic-inorganic composites,

an adhesive layer over said substrate, and

a semiconductor layer on said adhesive layer, said semiconductor layer comprising, and at least one semiconductor device in said semiconductor layer, said semiconductor device formed in said semiconductor layer prior to bonding said semiconductor layer to the said adhesive layer and is selected from the group consisting of digital devices, analog devices, n-type metal-oxide-semiconductor devices (NMOS), p-type MOS (PMOS) devices, complementary MOS (CMOS) devices, bipolar transistors, bipolar and CMOS (BiCMOS) devices, SiGe bipolar or field effect devices, integrated passive devices, Micro Electro Mechanical devices, voltage control oscillators, upconverters and downconverters.

Claim 32 (Original) The integrated circuit structure of claim 31 further including a porous layer below said semiconductor layer.

Claim 33 (Cancel)

Claim 34 (Original) The integrated structure of claim 31 wherein said at least one semiconductor device further includes insulating regions extending through said semiconductor layer.

Claim 35 (Original) The integrated structure of claim 31 wherein said semiconductor layer containing at least one semiconductor device further includes additional layers containing interconnection circuitry.

Claim 36 (Original) The integrated structure of claim 31 wherein said semiconducting layer is selected from the group consisting of silicon, silicon-germanium alloys, silicon-carbon alloys, silicon-germanium alloys containing carbon; the aforementioned materials doped with any element; the aforementioned materials in layered or graded composition combinations; the aforementioned materials in single crystal, polycrystalline, or nanocrystalline form.

Claim 37 (Original) The integrated structure of claim 31 wherein said semiconductor layer has a thickness in the range from 20 to 1000 nm.

Claim 38 (Original) The integrated structure of claim 31 wherein said substrate further includes one of passive cooling and active cooling.

Claim 39 (Cancel)

Claim 40 (Original) The integrated structure of claim 31 wherein said substrate includes one or more overlayers selected from the group consisting of highly insulating ($>1 \text{ k}\Omega\text{-cm}$) single-crystal Si, highly insulating ($>1 \text{ k}\Omega\text{-cm}$) single-crystal silicon germanium, highly insulating ($>1 \text{ k}\Omega\text{-cm}$) polycrystalline Si or highly insulating ($>1 \text{ k}\Omega\text{-cm}$) polycrystalline silicon germanium, single crystal diamond, polycrystalline diamond; silicon oxide; aluminum oxide, other metal oxides, aluminum nitride, other crystalline or amorphous nitrides, and mixtures thereof.